

Automotive Service Technician

(Job Role)

Qualification Pack: Ref. Id. ASC/Q1402
Sector: Automotive

Textbook for Class XI

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

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FOREWORD

The National Curriculum Framework–2005 (NCF–2005) recommends bringing work and education into the domain of the curricular, infusing it in all areas of learning while giving it an identity of its own at relevant stages. It explains that work transforms knowledge into experience and generates important personal and social values such as self-reliance, creativity and cooperation. Through work one learns to find one's place in the society. It is an educational activity with an inherent potential for inclusion. Therefore, an experience of involvement in productive work in an educational setting will make one appreciate the worth of social life and what is valued and appreciated in society. Work involves interaction with material or other people (mostly both), thus creating a deeper comprehension and increased practical knowledge of natural substances and social relationships.

Through work and education, school knowledge can be easily linked to learners' life outside the school. This also makes a departure from the legacy of bookish learning and bridges the gap between the school, home, community and the workplace. The NCF–2005 also emphasises on Vocational Education and Training (VET) for all those children who wish to acquire additional skills and/or seek livelihood through vocational education after either discontinuing or completing their school education. VET is expected to provide a 'preferred and dignified' choice rather than a terminal or 'last-resort' option.

As a follow-up of this, NCERT has attempted to infuse work across the subject areas and also contributed in the development of the National Skill Qualification Framework (NSQF) for the country, which was notified on 27 December 2013. It is a quality assurance framework that organises all qualifications according to levels of knowledge, skills and attitude. These levels, graded from one to ten, are defined in terms of learning outcomes, which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning. The NSQF sets common principles and guidelines for a nationally recognised qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities.

It is under this backdrop that Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Bhopal, a constituent of NCERT has developed learning outcomes based modular curricula for the vocational subjects from Classes IX to XII. This has been developed under the Centrally Sponsored Scheme of Vocationalisation of Secondary

and Higher Secondary Education of the Ministry of Education, erstwhile Ministry of Human Resource Development.

This textbook has been developed as per the learning outcomes based curriculum, keeping in view the National Occupational Standards (NOS) for the job role and to promote experiential learning related to the vocation. This will enable the students to acquire necessary skills, knowledge and attitude.

I acknowledge the contribution of the development team, reviewers and all the institutions and organisations, which have supported in the development of this textbook.

NCERT would welcome suggestions from students, teachers and parents, which would help us to further improve the quality of the material in subsequent editions.

New Delhi
September 2020

HRUSHIKESH SENAPATY
Director
National Council of Educational
Research and Training

ABOUT THE TEXTBOOK

India has been witnessing growth in the automotive sector with new developments taking place in all components of automobiles. The automotive manufacturing industry comprises the production of commercial vehicles, passenger cars, three- and two-wheelers, etc. We need trained manpower to carry out the various activities in sales, service and production of automotive products. Automotive Service Technician Level IV involves repairing and servicing of automobile and accessories. An Automotive Service Technician is responsible for installation, minor repair, maintenance and servicing of vehicles. The person should be able to work independently, perform laborious tasks, should be a good listener, good at taking and following instructions, a good team player and result-oriented, with a positive attitude. Automotive Service Technician Level IV is an intermediate-level course for a job role in the automotive sector.

This textbook for the job role of 'Automotive Service Technician' has been developed to impart knowledge skills through hands-on learning experience, which forms a part of the experimental learning. The textbook has been developed with the contribution from subject experts, vocational teachers and industry experts and academicians for making it a useful and inspiring teaching-learning resource material for the vocational students. Adequate care has been taken to align the contents of the textbook with the National Occupational Standards (NOSs) for the job role so that the student acquires the necessary knowledge and skills as per performance criteria mentioned in the respective NOSs of the Qualification Pack (QP).

The NOSs for the job role of 'Automotive Service Technician' covered through this textbook are as follows:

1. ASC/N 1401: assist in service, maintenance and repair of the vehicle
2. ASC/N 0001: plan and organise work to meet expected outcomes
3. ASC/N 0002: work effectively in a team
4. ASC/N 0003: maintain a healthy, safe and secure working environment

Unit 1 of the textbook gives an introduction to engineering drawing. Unit 2 focuses on the various types of fasteners used in the automobile sector. Unit 3 talks about the types of material used for construction of automobile. Unit 4 discusses the measuring equipment, their handling and usage. Unit 5 highlights the importance of regular maintenance of an engine. Unit 6 talks about the transmission system.

Unit 7 explains lubrication and setting of gear box. Unit 8 talks about the types of wheels, hub greasing and bearing play adjustments. Lastly, Unit 9 discusses the repair and maintenance of tubes and tyres, types of brakes, their repair and maintenance.

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